REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

By the present amendment Claim 1 has been amended, and Claims 2-3, 5, 8, and 10-14 have been canceled without prejudice. No new matter has been added.

Claim 1 has been amended to incorporate the limitations of Claim 3 where the hydrogenated amorphous material is hydrogenated amorphous carbon and where the limitations (i.e., the hydrogenated amorphous carbon decomposes and releases hydrogen at a temperature greater than 300°C and the plastic substrate is softened at a temperature in a range of from 80-300°C) and the limitations of Claim 8 (i.e., the recording layer is formed via plasma assisted chemical vapor deposition techniques by decomposition of a hydrocarbon with a pressure of 20-400 mTorrs and a substrate bias voltage in a range of from 250-550 volts). By this amendment, Applicants respectfully submit that Claim 1 and all pending dependent claims of Claim 1 are in condition for allowance for the reasons below.

The recording layer formed according to the conditions of the techniques recited in the amended Claim 1 enables the formation of recesses or pits in the recording layer and the plastic substrate of the recording medium of this invention at a temperature of about 300°C. The pits thus formed are relatively small (the average dimension of the pits is about 1 μm for CD and is about 0.47 μm for (DVD), which gives the recording medium of this invention a relatively high recording density, and a reproduction capability conforming to the CD and DVD standards.

JP 04-069834, as understood, discloses an optical data recording medium that includes a

magnetic film, a dielectric layer and a reflecting layer. The dielectric layer is made of a non-crystalline SiC material containing hydrogen, which differs from the claimed hydrogenated amorphous carbon as recited in the amended Claim 1 of this invention and does not serve as the recording layer, but it is instead used for improving chemical stability of the recording medium.

Bosch WO 83/02254 or Bosch, M. A., "Optical recording in hydrogenated semiconductors...", discloses a recording medium that is formed on a glass substrate and that is made from amorphous Si:H which is operated at 600°C for evolution of hydrogen so as to cause the recording medium to deform, such as bulging, swelling, or lift-off.

Brady et al. (U.S. Patent No. 5,440,507) discloses a recording medium that includes a diamond-like carbon film deposited on a substrate via PACVD with a pressure in the range of 30-300 mTorrs (col. 6, lines 35-36) and a substrate bias voltage of 80-150 volts (col. 5, lines 40-46). The refraction index of the diamond-like carbon film is changed from 1.9 to 2.9 after experiencing an anneal temperature of 600°C (col. 5, lines 49-52) due to conversion of sp^2 bonds to sp^3 bonds (col. 7, lines 1-3).

Takakubo et al. (JP 01-169749) discloses a recording medium that includes a hydrogenated amorphous carbon film, which is formed on a glass substrate or a resin substrate made from a material, such as polyvinyl alcohol, polyvinyl butyral, polyvinyl acetate, polymethyl methacrylate, polyvinyl chloride, polyacrylonitril, polyethylene, and polystyrene, and which can be changed from an initial state to a writing state upon heating to a temperature of at least 600°C. The recording medium is required to have a hardness equivalent to the hardness of sapphire and no pinholes formed therein (abstract). As such, formation of pits in the

amorphous carbon film and the resin substrate must be avoided during writing of the recording medium.

Tsuo et al. (U.S. Patent No. 5,194,349) discloses a recording medium that includes an amorphous Si:H film formed on a glass substrate or a plastic substrate. As a matter of fact, Tsuo et al. teaches that the glass substrate is harder and smoother than the plastic substrate, which enables translation to higher data capacity and speed (col. 13, line 38:41). In addition, the writing process of Tsuo et al. (i.e., state change) is different from that of this invention (i.e., formation of pits). Therefore, either the glass substrate or the plastic substrate is required to remain intact (i.e., without formation of pits or deformation) during the writing process.

In view of the foregoing, none of the above described citations actually teaches the use of a specific amorphous hydrogenated carbon layer as presently claimed, which is particularly formed under the conditions of the techniques as recited in the amended Claim 1 and which enables the formation of small recesses in the plastic substrate at a relatively low temperature range (i.e., 80-300°C), as the recording layer. Note that the recording layers disclosed in Brady et al. and Takakubo et al. are required to use a relatively high temperature (600°C) to conduct the phase or state change of the recording layers. At such a high temperature, the pits formed in the plastic substrate would be relatively large, and the recording density of the recording medium would be considerably decreased, which is against the trend of technology for developing DVD and VCD recording mediums.

For the reasons set forth above, Applicants respectfully submit that Claims 1, 4, 6-7, and 9, now pending in this application, are in condition for allowance over th cited references. This

amendment is considered to be responsive to all points raised in the Office Action. Accordingly, Applicants respectfully requests reconsideration and withdrawal of the outstanding rejections and earnestly solicits an indication of allowable subject matter. Should the Examiner have any remaining questions or concerns, the Examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,

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